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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,149	01/23/2004	Mark L. La Forest	H0006156-1160	8154

128 7590 11/02/2006

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EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/764,149

Applicant(s)

FOREST ET AL.

Examiner

Jeff Wollschlager

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,6,8,9,12 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) 1,3,5,6 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9,12 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

Applicant's amendment to the claims filed August 9, 2006 has been entered. Claims 9 and 12 are currently amended. Claims 17 and 18 are new. Claims 11 and 13 are cancelled. Claims 1, 3, 5, 6, and 8 remain withdrawn from further consideration. Applicant is encouraged to cancel the withdrawn claims to advance prosecution. Claims 9, 12, and 15-18 are under examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Snyder et al. (U.S. Patent 5,686,117; issued November 11, 1997).

Regarding claim 17, Snyder et al. teach a method of manufacturing a preform for brake friction components (col. 1, lines 10-17) comprising: placing carbon fibers comprising loose fibers in the absence of binders (col. 3, lines 52-55; col. 3, line 65 - col. 4, line 2) into a constraint fixture having a bottom plate (Figure 2, element (48)), and an internal area corresponding in shape to the shape of the desired preform (Figure 2, element (60)), with the internal area being defined by annular perforated plates including an ejector/separator plate and a top/separator plate, an inner wall, and an

outer wall in a mold apparatus (Figure 2, elements (58), (62), (56), and (24)), compressing the carbon fibers to form a fibrous matrix (col. 6, lines 7-9), removing the constraint fixture from the mold apparatus (col. 6, lines 9-10; col. 6, lines 14-16; col. 5, lines 25-27 – hydraulic or pneumatic compression means of the constraint fixture is included as part of the mold apparatus), and subjecting the materials in the constraint fixture to densification by one or more of resin transfer molding, (col. 4, lines 24-28; col. 6, lines 14-16). It is noted that the separator plates taught by Snyder et al. that form the ejector and top plate are annular. As such, these plates have one perforation in the center. It is further noted that Snyder et al. teach that it is preferable, not required, to remove the separator plates prior to densification. It is further noted that the recitation in Snyder et al.: “impregnation of resin...is employed to densify the preform” (col. 4, lines 25-27) is understood to be resin transfer molding.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snyder et al. (U.S. Patent 5,686,117; issued November 11, 1997) in view of Duvall (U.S. Patent 6,183,583; issued February 6, 2001).

Regarding claim 9, Snyder et al. teach a method of manufacturing a preform for brake friction components (col. 1, lines 10-17) comprising: placing carbon fibers comprising loose fibers in the absence of binders (col. 3, lines 52-55; col. 3, line 65 - col. 4, line 2) into a constraint fixture having a bottom plate (Figure 2, element (48)), and an internal area corresponding in shape to the shape of the desired preform (Figure 2, element (60)), with the internal area being defined by annular perforated plates including an ejector/separator plate and a top/separator plate, an inner wall, and an outer wall in a mold apparatus (Figure 2, elements (58), (62), (56), and (24)), chopping continuous fiber tow to produce loose materials and spraying/dispensing carbon fiber materials into said dispenser (col. 3, lines 36-55); compressing the carbon fibers to form a fibrous matrix (col. 6, lines 7-9), removing the constraint fixture from the mold apparatus (col. 6, lines 9-10; col. 6, lines 14-16; col. 5, lines 25-27 – hydraulic or pneumatic compression means of the constraint fixture is included as part of the mold apparatus), and subjecting the materials in the constraint fixture to densification by one or more of resin transfer molding resin or pitch infiltration of carbon vapor deposition

(col. 4, lines 24-28; col. 6, lines 14-16). It is further noted that Snyder et al. teach that it is preferable, but not required, to remove the separator plates prior to densification.

Snyder et al. do not teach compressing at a pressure of about 3-10 atmospheres and compacting the fibers to a density suitable for densification. However, Duvall et al. teach an analogous method wherein carbon material is compressed to compact the material to a density suitable for densification and densifying the material within the constraint fixture at suitable conditions (Figure 6A, 6B, 6C; col. 2, lines 45-60; col. 3, lines 6-10).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to modify the method taught by Snyder et al. with the teaching of Duvall et al. for the purpose, as taught by Duvall et al. of densifying the preform while it is in its compressed state (col. 2, lines 45-60). Further, it would have been *prima facie* obvious to optimize the degree of compression (i.e. the pressure) to obtain the desired degree of compression and density of the specific material as suggested by Duvall et al. (col. 2, lines 45-col. 3, line 10).

As to claim 15, Snyder et al. teach the brake friction component is configured as an aircraft landing system brake (col. 1, lines 10-17).

As to claim 16, Snyder et al. teach locking means to maintain the top plate in place in the constraint fixture (Figure 2, elements (64), (50), (70), and (72)). Further, the method implicitly includes a means for lifting the constraint fixture out of the mold apparatus since Snyder et al. teach transporting the constraint fixture through subsequent unit operations. It is noted that the specific limitations of the locking means

and the lifting means do not hold significant patentable weight for the method of forming a brake preform since their structure does not substantially impact the practice or function of the method.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snyder et al. (U.S. Patent 5,686,117; issued November 11, 1997) in view of Duvall (U.S. Patent 6,183,583; issued February 6, 2001), as applied to claims 9, 15, and 16 above and further in view of Hecht (U.S. Patent 5,654,059; issued August 5, 1997) or Gilbert et al. (GB 1413130; published November 5, 1975).

As to claim 12, Snyder et al. in view of Duvall teach the method of claim 9 as discussed in the 103(a) rejection above, but do not disclose a step of lining the constraint fixture with a veil prior to spraying the chopped fibers into the constraint fixture. However, in analogous methods, both Hecht (col. 7, lines 30-33; col. 14, lines 4-5) and Gilbert et al. (page 3, lines 99-114) disclose employment of a veil.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to employ a veil as taught by either Hecht or Gilbert et al for the purpose, as taught by either Hecht or Gilbert et al., of facilitating compression and to prevent clogging or obstruction of the openings.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snyder et al (U.S. Patent 5,686,117; issued November 11, 1997), as applied to claim 17 above.

As to claim 18, Snyder et al. teach the method of claim 17 as discussed in the 102(b) rejection above, but do not disclose the claimed temperatures. However, it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to optimize the temperatures within the process for the purpose of producing a desired product, made of desired material, with the available equipment, as efficiently and productively as possible as is routinely practiced in the art.

Response to Arguments

Applicant's arguments with respect to claims 9, 11-13, 15 and 16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

All claims are rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager
Examiner
Art Unit 1732

October 25, 2006


CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER
10/25/06